



123

SEQUENCE LISTING

<110> Birkett, Ashley J.

<120> IMMUNOGENIC Hbc CHIMER PARTICLES HAVING ENHANCED STABILITY

<130> 4564/83501 ICC-102.2 PCT

<140> 09/930,915

<141> 2001-08-15

<150> 60/226,867

<151> 2000-08-22

<150> 60/225,843

<151> 2000-08-16

<160> 313

<170> PatentIn Ver. 2.1

<210> 1

<211> 16

<212> PRT

<213> Plasmodium falciparum

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Glu Tyr Leu Asn Lys Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser Pro
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<213> Streptococcus pneumoniae

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Lys Leu Glu Glu Leu Ser Asp Lys Ile Asp Glu Leu Asp Ala Glu
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<213> Streptococcus pneumoniae

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Gln Lys Lys Tyr Asp Glu Asp Gln Lys Lys Thr Glu Glu Lys Ala Ala
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Leu Glu Lys Ala Ala Ser Glu Glu Met Asp Lys Ala Val Ala Ala Val
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Gln Gln Ala
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<213> Cryptosporidium parvum

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Gln Asp Lys Pro Ala Asp Ala Pro Ala Ala Glu Ala Pro Ala Ala Glu
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Pro Ala Ala Gln Gln Asp Lys Pro Ala Asp Ala
20 25

<210> 6
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<213> Human immunodeficiency virus type 1

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Arg Lys Arg Ile His Ile Gly Pro Gly Arg Ala Phe Tyr Ile Thr Lys
1 5 10 15
Asn

<210> 7
<211> 31
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<213> Foot-and-mouth disease virus

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Tyr Asn Gly Glu Cys Arg Tyr Asn Arg Asn Ala Val Pro Asn Leu Arg
1 5 10 15
Gly Asp Leu Gln Val Leu Ala Gln Lys Val Ala Arg Thr Leu Pro
20 25 30

<210> 8
<211> 10
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<213> Influenza A virus

<400> 8

Tyr Arg Asn Leu Leu Trp Leu Thr Glu Lys
1 5 10

<210> 9

<211> 23

<212> PRT

<213> Influenza A virus

<400> 9

Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly Cys
1 5 10 15

Arg Cys Asn Gly Ser Ser Asp
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<210> 10

<211> 23

<212> PRT

<213> Influenza A virus

<400> 10

Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly Cys
1 5 10 15

Arg Cys Asn Asp Ser Ser Asp
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<210> 11

<211> 142

<212> PRT

<213> Yersinia pestis

<400> 11

Asp Ile Leu Lys Val Ile Val Asp Ser Met Asn His His Gly Asp Ala
1 5 10 15

Arg Ser Lys Leu Arg Glu Glu Leu Ala Glu Leu Thr Ala Glu Leu Lys
20 25 30

Ile Tyr Ser Val Ile Gln Ala Glu Ile Asn Lys His Leu Ser Ser Ser
35 40 45

Gly Thr Ile Asn Ile His Asp Lys Ser Ile Asn Leu Met Asp Lys Asn
50 55 60

Leu Tyr Gly Tyr Thr Asp Glu Glu Ile Phe Lys Ala Ser Ala Glu Tyr
65 70 75 80

Lys Ile Leu Glu Lys Met Pro Gln Thr Thr Ile Gln Val Asp Gly Ser
85 90 95

Glu Lys Lys Ile Val Ser Ile Lys Asp Phe Leu Gly Ser Glu Asn Lys

100 105 110
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 115 120 125
 Asp Asn Asn Glu Leu Ser His Phe Ala Thr Thr Cys Ser Asp
 130 135 140

<210> 12
 <211> 19
 <212> PRT
 <213> Haemophilus influenzae

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 Cys Ser Ser Ser Asn Asn Asp Ala Ala Gly Asn Gly Ala Ala Gln Phe
 1 5 10 15

Gly Gly Tyr

<210> 13
 <211> 11
 <212> PRT
 <213> Haemophilus influenzae

<400> 13
 Asn Lys Leu Gly Thr Val Ser Tyr Gly Glu Glu
 1 5 10

<210> 14
 <211> 16
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 <213> Haemophilus influenzae

<400> 14
 Asn Asp Glu Ala Ala Tyr Ser Lys Asn Arg Arg Ala Val Leu Ala Tyr
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<210> 15
 <211> 28
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 <213> Moraxella catarrhalis

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 Leu Asp Ile Glu Lys Asp Lys Lys Lys Arg Thr Asp Glu Gln Leu Gln
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Ala Glu Leu Asp Asp Lys Tyr Ala Gly Lys Gly Tyr
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<210> 16
 <211> 28

<212> PRT

<213> Moraxella catarrhalis

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Leu Asp Ile Glu Lys Asn Lys Lys Lys Arg Thr Glu Ala Glu Leu Gln
1 5 10 15

Ala Glu Leu Asp Asp Lys Tyr Ala Gly Lys Gly Tyr
20 25

<210> 17

<211> 27

<212> PRT

<213> Moraxella catarrhalis

<400> 17

Ile Asp Ile Glu Lys Lys Gly Lys Ile Arg Thr Glu Ala Leu Leu Ala
1 5 10 15

Glu Leu Asn Lys Asp Tyr Pro Gly Gln Gly Tyr
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<210> 18

<211> 25

<212> PRT

<213> Porphyromonas gingivalis

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Gly Val Ser Pro Lys Val Cys Lys Asp Val Thr Val Glu Gly Ser Asn
1 5 10 15

Glu Phe Ala Pro Val Gln Asn Leu Thr
20 25

<210> 19

<211> 20

<212> PRT

<213> Porphyromonas gingivalis

<400> 19

Arg Ile Gln Ser Thr Trp Arg Gln Lys Thr Val Asp Leu Pro Ala Gly
1 5 10 15

Thr Lys Tyr Val
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<210> 20

<211> 21

<212> PRT

<213> Trypanosoma cruzi

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<213> Plasmodium falciparum

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1 5 10 15

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<210> 22
<211> 20
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<210> 23
<211> 20
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<400> 23
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Asn Ala Asn Pro
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<211> 28
<212> PRT
<213> Plasmodium falciparum

<400> 24
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1 5 10 15

Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro
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<210> 25
<211> 20
<212> PRT
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Asn Pro Asn Val
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<210> 26
<211> 22
<212> PRT
<213> Plasmodium falciparum

<400> 26
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1 5 10 15
Asn Pro Asn Val Asp Pro
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<210> 27
<211> 24
<212> PRT
<213> Plasmodium falciparum

<400> 27
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1 5 10 15
Asn Pro Asn Val Asp Pro Asn Ala
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<210> 28
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<212> PRT
<213> Plasmodium falciparum

<400> 28
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Asn Val

<210> 29
<211> 20
<212> PRT
<213> Plasmodium falciparum

<400> 29

Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
1 5 10 15

Asn Val Asp Pro
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<210> 30

<211> 22

<212> PRT

<213> Plasmodium falciparum

<400> 30

Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
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Asn Val Asp Pro Asn Ala
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<210> 31

<211> 16

<212> PRT

<213> Plasmodium falciparum

<400> 31

Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Val
1 5 10 15

<210> 32

<211> 18

<212> PRT

<213> Plasmodium falciparum

<400> 32

Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Val
1 5 10 15

Asp Pro

<210> 33

<211> 20

<212> PRT

<213> Plasmodium falciparum

<400> 33

Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Val
1 5 10 15

Asp Pro Asn Ala
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<210> 34
<211> 19
<212> PRT
<213> Plasmodium vivax

<400> 34
Gly Asp Arg Ala Asp Gly Gln Pro Ala Gly Asp Arg Ala Asp Gly Gln
1 5 10 15
Pro Ala Gly

<210> 35
<211> 18
<212> PRT
<213> Plasmodium vivax

<400> 35
Arg Ala Asp Asp Arg Ala Ala Gly Gln Pro Ala Gly Asp Gly Gln Pro
1 5 10 15
Ala Gly

<210> 36
<211> 18
<212> PRT
<213> Plasmodium vivax

<400> 36
Ala Asn Gly Ala Gly Asn Gln Pro Gly Ala Asn Gly Ala Gly Asp Gln
1 5 10 15
Pro Gly

<210> 37
<211> 18
<212> PRT
<213> Plasmodium vivax

<400> 37
Ala Asn Gly Ala Asp Asn Gln Pro Gly Ala Asn Gly Ala Asp Asp Gln
1 5 10 15
Pro Gly

<210> 38
<211> 18
<212> PRT
<213> Plasmodium vivax

<400> 38

Ala Asn Gly Ala Gly Asn Gln Pro Gly Ala Asn Gly Ala Asp Asn Gln
1 5 10 15

Pro Gly

<210> 39

<211> 18

<212> PRT

<213> Plasmodium vivax

<400> 39

Ala Asn Gly Ala Asp Asn Gln Pro Gly Ala Asn Gly Ala Asp Asp Gln
1 5 10 15

Pro Gly

<210> 40

<211> 22

<212> PRT

<213> Plasmodium vivax

<400> 40

Ala Pro Gly Ala Asn Gln Glu Gly Gly Ala Ala Ala Pro Gly Ala Asn
1 5 10 15

Gln Glu Gly Gly Ala Ala
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<210> 41

<211> 16

<212> PRT

<213> Plasmodium berghei

<400> 41

Asp Pro Pro Pro Pro Asn Pro Asn Asp Pro Pro Pro Pro Asn Pro Asn
1 5 10 15

<210> 42

<211> 24

<212> PRT

<213> Plasmodium yoelii

<400> 42

Gln Gly Pro Gly Ala Pro Gln Gly Pro Gly Ala Pro Gln Gly Pro Gly
1 5 10 15

Ala Pro Gln Gly Pro Gly Ala Pro
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<210> 43
 <211> 15
 <212> PRT
 <213> Streptococcus sobrinus

<400> 43
 Lys Pro Arg Pro Ile Tyr Glu Ala Lys Leu Ala Gln Asn Gln Lys
 1 5 10 15

<210> 44
 <211> 16
 <212> PRT
 <213> Streptococcus sobrinus

<400> 44
 Ala Lys Ala Asp Tyr Glu Ala Lys Leu Ala Gln Tyr Glu Lys Asp Leu
 1 5 10 15

<210> 45
 <211> 9
 <212> PRT
 <213> Shigella flexneri

<400> 45
 Lys Asp Arg Thr Leu Ile Glu Gln Lys
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<210> 46
 <211> 15
 <212> PRT
 <213> respiratory syncytial virus

<400> 46
 Cys Ser Ile Cys Ser Asn Asn Pro Thr Cys Trp Ala Ile Cys Lys
 1 5 10 15

<210> 47
 <211> 25
 <212> PRT
 <213> Entamoeba histolytica

<400> 47
 Val Glu Cys Ala Ser Thr Val Cys Gln Asn Asp Asn Ser Cys Pro Ile
 1 5 10 15
 Ile Ala Asp Val Glu Lys Cys Asn Gln
 20 25

<210> 48
 <211> 34
 <212> PRT

<213> Schistosoma japonicum

<400> 48

Asp Leu Gln Ser Glu Ile Ser Leu Ser Leu Glu Asn Gly Glu Leu Ile
1 5 10 15

Arg Arg Ala Lys Ser Ala Glu Ser Leu Ala Ser Glu Leu Gln Arg Arg
20 25 30

Val Asp

<210> 49

<211> 34

<212> PRT

<213> Schistosoma mansoni

<400> 49

Asp Leu Gln Ser Glu Ile Ser Leu Ser Leu Glu Asn Ser Glu Leu Ile
1 5 10 15

Arg Arg Ala Lys Ala Ala Glu Ser Leu Ala Ser Asp Leu Gln Arg Arg
20 25 30

Val Asp

<210> 50

<211> 16

<212> PRT

<213> Human immunodeficiency virus

<400> 50

Gly Pro Lys Glu Pro Phe Arg Asp Tyr Val Asp Arg Phe Tyr Lys Cys
1 5 10 15

<210> 51

<211> 17

<212> PRT

<213> Corynebacterium diphtheriae

<400> 51

Phe Gln Val Val His Asn Ser Tyr Asn Arg Pro Ala Tyr Ser Pro Gly
1 5 10 15

Cys

<210> 52

<211> 25

<212> PRT

<213> Borrelia burgdorferi

<400> 52

Val Glu Ile Lys Glu Gly Thr Val Thr Leu Lys Arg Glu Ile Asp Lys
1 5 10 15

Asn Gly Lys Val Thr Val Ser Leu Cys
20 25

<210> 53

<211> 19

<212> PRT

<213> *Borrelia burgdorferi*

<400> 53

Thr Leu Ser Lys Asn Ile Ser Lys Ser Gly Glu Val Ser Val Glu Leu
1 5 10 15

Asn Asp Cys

<210> 54

<211> 11

<212> PRT

<213> Influenza A virus

<400> 54

Ser Ser Val Ser Ser Phe Glu Arg Phe Glu Cys
1 5 10

<210> 55

<211> 21

<212> PRT

<213> *Trypanosoma cruzi*

<400> 55

Ser His Asn Phe Thr Leu Val Ala Ser Val Ile Ile Glu Glu Ala Pro
1 5 10 15

Ser Gly Asn Thr Cys
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<210> 56

<211> 16

<212> PRT

<213> *Plasmodium falciparum*

<400> 56

Ser Val Gln Ile Pro Lys Val Pro Tyr Pro Asn Gly Ile Val Tyr Cys
1 5 10 15

<210> 57

<211> 16

<212> PRT

<213> Plasmodium falciparum

<400> 57

Asp Phe Asn His Tyr Tyr Thr Leu Lys Thr Gly Leu Glu Ala Asp Cys
1 5 10 15

<210> 58

<211> 18

<212> PRT

<213> Plasmodium falciparum

<400> 58

Pro Ser Asp Lys His Ile Glu Gln Tyr Lys Lys Ile Lys Asn Ser Ile
1 5 10 15

Ser Cys

<210> 59

<211> 20

<212> PRT

<213> Plasmodium falciparum

<400> 59

Glu Tyr Leu Asn Lys Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser Pro
1 5 10 15

Cys Ser Val Thr
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<210> 60

<211> 19

<212> PRT

<213> Plasmodium vivax

<400> 60

Tyr Leu Asp Lys Val Arg Ala Thr Val Gly Thr Glu Trp Thr Pro Cys
1 5 10 15

Ser Val Thr

<210> 61

<211> 16

<212> PRT

<213> Streptococcus sobrinus

<400> 61

Lys Pro Arg Pro Ile Tyr Glu Ala Lys Leu Ala Gln Asn Gln Lys Cys
1 5 10 15

<210> 62

<211> 17
 <212> PRT
 <213> Streptococcus sobrinus

<400> 62
 Ala Lys Ala Asp Tyr Glu Ala Lys Leu Ala Gln Tyr Glu Lys Asp Leu
 1 5 10 15
 Cys

<210> 63
 <211> 16
 <212> PRT
 <213> Lymphocytic choriomeningitis virus

<400> 63
 Arg Pro Gln Ala Ser Gly Val Tyr Met Gly Asn Leu Thr Ala Gln Cys
 1 5 10 15

<210> 64
 <211> 16
 <212> PRT
 <213> Clostridium tetani

<400> 64
 Gln Tyr Ile Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu Leu Cys
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<210> 65
 <211> 18
 <212> DNA
 <213> plasmid pKK223

<400> 65
 ggtgcatgca aggagatg 18

<210> 66
 <211> 55
 <212> DNA
 <213> plasmid pKK223

<400> 66
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<210> 67
 <211> 24
 <212> DNA
 <213> Hepatitis B virus

<400> 67
 ttgggccatg gacatcgacc ctta 24

<210> 68
 <211> 29
 <212> DNA
 <213> Hepatitis B virus

<400> 68
 gcggaattcc ttccaaatta acaccacc 29

<210> 69
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 <212> DNA
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 cgcggaattca aaaagagctc gatccagcgt ctagagac 38

<210> 70
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<400> 70
 cgcaagctta aacaacagta gtctccgga g 31

<210> 71
 <211> 40
 <212> DNA
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<220>
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 cytochrome 450

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<210> 72
 <211> 31
 <212> DNA
 <213> Hepatitis B virus

<400> 72
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<210> 73
 <211> 39
 <212> DNA
 <213> Hepatitis B virus

<400> 73

cgcggaattca aaaagagctc ccagcgtcta gagacctag 39

<210> 74

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: human
cytochrome P450

<400> 74

caagaaaaac agctagacga aaacgcaa at gtacagctc 39

<210> 75

<211> 42

<212> DNA

<213> Hepatitis B virus

<400> 75

cgcaagctta gagctcttga attccaaca cagtagtctc cg 42

<210> 76

<211> 28

<212> DNA

<213> Hepatitis B virus

<400> 76

cgcgagctcc cagcgtctag agacctag 28

<210> 77

<211> 17

<212> DNA

<213> plasmid pKK223

<400> 77

gtatcaggct gaaaatc 17

<210> 78

<211> 19

<212> PRT

<213> Plasmodium falciparum

<400> 78

Ile Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn
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Pro Glu Leu

<210> 79

<211> 57
 <212> DNA
 <213> Plasmodium falciparum

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 <210> 80
 <211> 49
 <212> DNA
 <213> Plasmodium falciparum

 <400> 80
 ccggattagc gttcggatta gcgttcggat tagcgttcgg attagcgtt 49

 <210> 81
 <211> 31
 <212> PRT
 <213> Plasmodium falciparum

 <400> 81
 Ile Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn
 1 5 10 15
 Pro Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Glu Leu
 20 25 30

 <210> 82
 <211> 93
 <212> DNA
 <213> Plasmodium falciparum

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 tccgaacggt gacccgaacg ctaatccgga gct 93

 <210> 83
 <211> 91
 <212> DNA
 <213> Plasmodium falciparum

 <400> 83
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 tagcgttcgg gtcaacgttc ggattagcgt t 91

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 <213> Plasmodium falciparum

 <400> 84
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1	5	10	15
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Pro Asn Ala Asn Pro Glu Leu
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 cccagagct 69

<210> 86
 <211> 61
 <212> DNA
 <213> Plasmodium falciparum

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 t 61

<210> 87
 <211> 23
 <212> PRT
 <213> Plasmodium falciparum

<400> 87
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Pro Asn Ala Asn Pro Glu Leu
20

<210> 88
 <211> 69
 <212> DNA
 <213> Plasmodium falciparum

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 cccagagct 69

<210> 89
 <211> 61
 <212> DNA
 <213> Plasmodium falciparum

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 t 61

<210> 90
 <211> 31
 <212> PRT
 <213> Plasmodium falciparum

<400> 90
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 1 5 10 15
 Pro Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Glu Leu
 20 25 30

<210> 91
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 <212> DNA
 <213> Plasmodium falciparum

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 cccgaatggt gaccccaatg ccaatccgga gct 93

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 <212> DNA
 <213> Plasmodium falciparum

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 ttggatccac gttcggattc gcgtt 85

<210> 93
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 Ala Asn Pro Asn Val Glu Leu
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<210> 94
 <211> 69
 <212> DNA
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 tgttgagct 69

<210> 95
 <211> 61
 <212> DNA
 <213> Plasmodium falciparum

<400> 95
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 t 61

<210> 96
 <211> 25
 <212> PRT
 <213> Plasmodium falciparum

<400> 96
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 Ala Asn Pro Asn Val Asp Pro Glu Leu
 20 25

<210> 97
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 <212> DNA
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<210> 98
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 <212> DNA
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<210> 99
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ccacgttcgg att 73

<210> 102
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Pro Asn Val Glu Leu
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<210> 103
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gct 63

<210> 104
<211> 55
<212> DNA
<213> Plasmodium falciparum

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<210> 105
<211> 23
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<213> Plasmodium falciparum

<400> 105

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1 5 10 15

Pro Asn Val Asp Pro Glu Leu
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<211> 69

<212> DNA

<213> Plasmodium falciparum

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ccctgagct 69

<210> 107

<211> 61

<212> DNA

<213> Plasmodium falciparum

<400> 107

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t 61

<210> 108

<211> 25

<212> PRT

<213> Plasmodium falciparum

<400> 108

Ile Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn
1 5 10 15

Pro Asn Val Asp Pro Asn Ala Glu Leu
20 25

<210> 109

<211> 75

<212> DNA

<213> Plasmodium falciparum

<400> 109

aattaacgtg gatccaaatg ccaaccctaa cgctaatacca aacgccaacc cgaatgttga 60
ccctaagtct gagct 75

<210> 110

<211> 67

<212> DNA

<213> Plasmodium falciparum

<400> 110

cagcattagg gtcaacattc gggttggcgt ttggattagc gttaggggtg gcatttggat 60
ccacgtt 67

<210> 111
<211> 19
<212> PRT
<213> Plasmodium falciparum

<400> 111
Ile Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
1 5 10 15

Val Glu Leu

<210> 112
<211> 57
<212> DNA
<213> Plasmodium falciparum

<400> 112
aattgatcca aatgccaacc ctaacgctaa tccaaacgcc aaccggaatg ttgagct 57

<210> 113
<211> 49
<212> DNA
<213> Plasmodium falciparum

<400> 113
caacattcgg gttggcggtt ggattagcgt taggggttggc atttggatc 49

<210> 114
<211> 21
<212> PRT
<213> Plasmodium falciparum

<400> 114
Ile Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
1 5 10 15

Val Asp Pro Glu Leu
20

<210> 115
<211> 63
<212> DNA
<213> Plasmodium falciparum

<400> 115
aattgatcca aatgccaacc ctaacgctaa tccaaacgcc aaccggaatg ttgaccctga 60
gct 63

<210> 116
<211> 55
<212> DNA
<213> Plasmodium falciparum

<400> 116
cagggtcaac attcgggttg gcgtttggat tagcgtagg gttggcattt ggatc 55

<210> 117
<211> 23
<212> PRT
<213> Plasmodium falciparum

<400> 117
Ile Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
1 5 10 15

Val Asp Pro Asn Ala Glu Leu
20

<210> 118
<211> 69
<212> DNA
<213> Plasmodium falciparum

<400> 118
aattgatcca aatgcccaacc ctaacgctaa tccaaacgcc aaccggaatg ttgaccctaa 60
tgccgagct 69

<210> 119
<211> 61
<212> DNA
<213> Plasmodium falciparum

<400> 119
cggcattagg gtcaacattc gggttggcgt ttggattagc gttagggttg gcatttggat 60
c 61

<210> 120
<211> 21
<212> PRT
<213> Plasmodium falciparum

<400> 120
Ile Glu Tyr Leu Asn Lys Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser
1 5 10 15

Pro Cys Ser Val Thr
20

<210> 121

<211> 69
 <212> DNA
 <213> Plasmodium falciparum

 <400> 121
 aattgaatat ctgaacaaaa tccagaactc tctgtccacc gaatggtctc cgtgctccgt 60
 tacctagta 69

<210> 122
 <211> 69
 <212> DNA
 <213> Plasmodium falciparum

 <400> 122
 agcttactag gtaacggagc acggagacca ttcggtggac agagagttct ggattttgtt 60
 cagatattc 69

<210> 123
 <211> 24
 <212> PRT
 <213> Plasmodium vivax

 <400> 123
 Ile Pro Ala Gly Asp Arg Ala Asp Gly Gln Pro Ala Gly Asp Arg Ala
 1 5 10 15
 Ala Gly Gln Pro Ala Gly Glu Leu
 20

<210> 124
 <211> 72
 <212> DNA
 <213> Plasmodium vivax

 <400> 124
 aattccggct ggtgaccgtg cagatggcca gccagcgggt gaccgcgctg caggccagcc 60
 ggctggcgag ct 72

<210> 125
 <211> 64
 <212> DNA
 <213> Plasmodium vivax

 <400> 125
 cgccagccgg ctggcctgca gcgcgggtcac ccgctggctg gccatctgca cggtcaccag 60
 ccgg 64

<210> 126
 <211> 21
 <212> PRT
 <213> Plasmodium vivax

<400> 126

Ile Asp Arg Ala Ala Gly Gln Pro Ala Gly Asp Arg Ala Asp Gly Gln
1 5 10 15

Pro Ala Gly Glu Leu
20

<210> 127

<211> 63

<212> DNA

<213> Plasmodium vivax

<400> 127

aattgacaga gcagccggac aaccagcagg cgatcgagca gacggacagc ccgcagggga 60
gct 63

<210> 128

<211> 55

<212> DNA

<213> Plasmodium vivax

<400> 128

cccctgctggg ctgtccgtct gctcgatcgc ctgctgggtg tccggctgct ctgtc 55

<210> 129

<211> 21

<212> PRT

<213> Plasmodium vivax

<400> 129

Ile Ala Asn Gly Ala Gly Asn Gln Pro Gly Ala Asn Gly Ala Gly Asp
1 5 10 15

Gln Pro Gly Glu Leu
20

<210> 130

<211> 63

<212> DNA

<213> Plasmodium vivax

<400> 130

aattgcgaac ggcgccggtg atcagccggg ggcaaacggc gcgggtgatc aaccagggga 60
gct 63

<210> 131

<211> 55

<212> DNA

<213> Plasmodium vivax

<400> 131

cccctggttg atcacccgcg ccgtttgccc ccggctgatt accggcgccg ttcgc 55

<210> 132
 <211> 21
 <212> PRT
 <213> Plasmodium vivax

<400> 132
 Ile Ala Asn Gly Ala Asp Asn Gln Pro Gly Ala Asn Gly Ala Asp Asp
 1 5 10 15
 Gln Pro Gly Glu Leu
 20

<210> 133
 <211> 63
 <212> DNA
 <213> Plasmodium vivax

<400> 133
 aattgcgaac ggcgccgata atcagccggg tgcaaacggg gcggatgacc aaccaggcga 60
 gct 63

<210> 134
 <211> 55
 <212> DNA
 <213> Plasmodium vivax

<400> 134
 cgcttggttg gtcattccgcc ccgtttgcac ccggctgatt atcggcgcgcg ttgcg 55

<210> 135
 <211> 39
 <212> PRT
 <213> Plasmodium vivax

<400> 135
 Ile Ala Asn Gly Ala Gly Asn Gln Pro Gly Ala Asn Gly Ala Gly Asp
 1 5 10 15
 Gln Pro Gly Ala Asn Gly Ala Asp Asn Gln Pro Gly Ala Asn Gly Ala
 20 25 30
 Asp Asp Gln Pro Gly Glu Leu
 35

<210> 136
 <211> 117
 <212> DNA
 <213> Plasmodium vivax

<400> 136
 aattgcgaac ggcgccggtg atcagccggg agcaaacggc gcgggggatc aaccaggcgc 60

caatggtgca gacaaccagc ctggggcgaa tggagccgat gaccaaccgc gcgagct 117

<210> 137

<211> 109

<212> DNA

<213> Plasmodium vivax

<400> 137

cgccgggttg gtcacggct ccattcgccc caggctggtt gtctgcacca ttggcgctg 60
gttgatcccc cgcgcggtt gtcceggct gattaccggc gccgttcgc 109

<210> 138

<211> 25

<212> PRT

<213> Plasmodium vivax

<400> 138

Ile Ala Pro Gly Ala Asn Gln Glu Gly Gly Ala Ala Ala Pro Gly Ala
1 5 10 15

Asn Gln Glu Gly Gly Ala Ala Glu Leu
20 25

<210> 139

<211> 75

<212> DNA

<213> Plasmodium vivax

<400> 139

aattgcgccg ggcgccaacc aggaaggtgg ggctgcagcg ccaggagcca atcaagaagg 60
cggcgcagcg gagct 75

<210> 140

<211> 67

<212> DNA

<213> Plasmodium vivax

<400> 140

ccgctgcacc gccttcttga ttggctcctg gcgctgcagc cccaccttcc tggttggcgc 60
ccggcgc 67

<210> 141

<211> 21

<212> PRT

<213> Plasmodium vivax

<400> 141

Ile Glu Tyr Leu Asp Lys Val Arg Ala Thr Val Gly Thr Glu Trp Thr
1 5 10 15

Pro Cys Ser Val Thr
20

<210> 142
 <211> 69
 <212> DNA
 <213> Plasmodium vivax

<400> 142
 aattgaatat ctggataaag tgcgtgacg cggtggcacg gaatggactc cgtgcagcgt 60
 gacctaata 69

<210> 143
 <211> 69
 <212> DNA
 <213> Plasmodium vivax

<400> 143
 agcttattag gtcacgctgc acggagtcca ttccgtgcca acggtcgcac gcactttatc 60
 cagatattc 69

<210> 144
 <211> 10
 <212> PRT
 <213> Plasmodium falciparum

<400> 144
 Thr Val Ser Ala Pro Ser Trp Glu Thr Ser
 1 5 10

<210> 145
 <211> 42
 <212> DNA
 <213> Plasmodium falciparum

<400> 145
 gccaaagctta ctaggtaacg gagggccggag accattcggt gg 42

<210> 146
 <211> 44
 <212> DNA
 <213> Plasmodium vivax

<400> 146
 cgcgaattca agcgaacggc gccgataatc agccggcggg tgca 44

<210> 147
 <211> 8
 <212> PRT
 <213> Hepatitis B virus

<400> 147
 Cys Val Val Thr Thr Glu Pro Leu

1 5

<210> 148
 <211> 37
 <212> DNA
 <213> Hepatitis B virus

<400> 148
 cgcaagctta ctagcaaaca acagtagtct ccggaag 37

<210> 149
 <211> 7
 <212> PRT
 <213> Hepatitis B virus

<400> 149
 Pro Leu Thr Ser Leu Ile Pro
 1 5

<210> 150
 <211> 32
 <212> DNA
 <213> Hepatitis B virus

<400> 150
 cgcaagctta cggaagtgtt gataggatag gg 32

<210> 151
 <211> 8
 <212> PRT
 <213> Hepatitis B virus

<400> 151
 Thr Ser Leu Ile Pro Ala Asn Pro
 1 5

<210> 152
 <211> 34
 <212> DNA
 <213> Hepatitis B virus

<400> 152
 cgcaagctta tggtgatagg ataggggcat ttgg 34

<210> 153
 <211> 7
 <212> PRT
 <213> Hepatitis B virus

<400> 153
 Leu Ile Pro Ala Asn Pro Pro

1 5
<210> 154
<211> 31
<212> DNA
<213> Hepatitis B virus

<400> 154
cgcaagctta taggatagg gcat ttggtg g

31

<210> 155
<211> 6
<212> PRT
<213> Hepatitis B virus

<400> 155
Ile Pro Ala Asn Pro Pro
1 5

<210> 156
<211> 28
<212> DNA
<213> Hepatitis B virus

<400> 156
gcgaagctta gataggggca ttggtgg

28

<210> 157
<211> 6
<212> PRT
<213> Hepatitis B virus

<400> 157
Pro Ala Asn Pro Pro Arg
1 5

<210> 158
<211> 28
<212> DNA
<213> Hepatitis B virus

<400> 158
cgcaagctta aggggcattt ggtggtct

28

<210> 159
<211> 7
<212> PRT
<213> Hepatitis B virus

<400> 159
Cys Pro Ala Asn Pro Pro Arg

1 5

<210> 160
 <211> 7
 <212> PRT
 <213> Hepatitis B virus

<400> 160
 Ala Asn Pro Pro Arg Tyr Ala
 1 5

<210> 161
 <211> 31
 <212> DNA
 <213> Hepatitis B virus

<400> 161
 gcgaagctta gcaaggggca tttggtggtc t

31

<210> 162
 <211> 30
 <212> DNA
 <213> Hepatitis B virus

<400> 162
 gcgaagctta ggcatttggt ggtctatagc

30

<210> 163
 <211> 8
 <212> PRT
 <213> Hepatitis B virus

<400> 163
 Cys Ala Asn Pro Pro Arg Tyr Ala
 1 5

<210> 164
 <211> 32
 <212> DNA
 <213> Hepatitis B virus

<400> 164
 gcgaagctta gcaggcattt ggtggtctat aa

32

<210> 165
 <211> 7
 <212> PRT
 <213> Hepatitis B virus

<400> 165
 Asn Pro Pro Arg Tyr Ala Pro

1

5

<210> 166

<211> 31

<212> DNA

<213> Hepatitis B virus

<400> 166

cgcaagctta atttgggtggt ctataagctg g

31

<210> 167

<211> 8

<212> PRT

<213> Plasmodium falciparum

<400> 167

Asn Ala Asn Pro Asn Val Asp Pro

1

5

<210> 168

<211> 6

<212> PRT

<213> Homo sapiens

<400> 168

Asn Tyr Lys Lys Pro Lys

1

5

<210> 169

<211> 7

<212> PRT

<213> Hepatitis B virus

<400> 169

Lys Arg Gly Pro Arg Thr His

1

5

<210> 170

<211> 21

<212> PRT

<213> Homo sapiens

<400> 170

Leu His Pro Asp Glu Thr Lys Asn Met Leu Glu Met Ile Phe Thr Pro

1

5

10

15

Arg Asn Ser Asp Arg

20

<210> 171

<211> 5

<212> PRT
<213> Human immunodeficiency virus type 1

<400> 171
Arg Ile Lys Gln Ile
1 5

<210> 172
<211> 11
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 172
Arg Ile Lys Gln Ile Gly Met Pro Gly Gly Lys
1 5 10

<210> 173
<211> 10
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 173
Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu
1 5 10

<210> 174
<211> 14
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 174
Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp
1 5 10

<210> 175
<211> 33
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 175
Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His
1 5 10 15
Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Ile
20 25 30

Leu

<210> 176
<211> 16
<212> PRT

<213> Human immunodeficiency virus type 1

<400> 176

His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg
1 5 10 15

<210> 177

<211> 36

<212> PRT

<213> Human immunodeficiency virus type 1

<400> 177

Tyr Thr His Ile Ile Tyr Ser Leu Ile Glu Gln Ser Gln Asn Gln Gln
1 5 10 15

Glu Lys Asn Glu Gln Glu Leu Leu Ala Leu Asp Lys Trp Ala Ser Leu
20 25 30

Trp Asn Trp Phe
35

<210> 178

<211> 26

<212> PRT

<213> Human immunodeficiency virus type 1

<400> 178

Tyr Thr His Ile Ile Tyr Ser Leu Ile Glu Gln Ser Gln Asn Gln Gln
1 5 10 15

Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu
20 25

<210> 179

<211> 19

<212> PRT

<213> Homo sapiens

<400> 179

Gly Arg Glu Arg Arg Pro Arg Leu Ser Asp Arg Pro Gln Leu Pro Tyr
1 5 10 15

Leu Glu Ala

<210> 180

<211> 20

<212> PRT

<213> Homo sapiens

<400> 180

Arg Glu Gln Arg Arg Phe Ser Val Ser Thr Leu Arg Asn Leu Gly Leu
1 5 10 15

Gly Lys Lys Ser
20

<210> 181
<211> 18
<212> PRT
<213> Plasmodium yoelii

<400> 181
Pro Asn Lys Leu Pro Arg Ser Thr Ala Val Val His Gln Leu Lys Arg
1 5 10 15

Lys His

<210> 182
<211> 11
<212> PRT
<213> Plasmodium yoelii

<400> 182
Thr Ala Val Val His Gln Leu Lys Arg Lys His
1 5 10

<210> 183
<211> 22
<212> PRT
<213> Plasmodium vivax

<400> 183
Pro Ala Gly Asp Arg Ala Asp Gly Gln Pro Ala Gly Asp Arg Ala Ala
1 5 10 15

Ala Gly Gln Pro Ala Gly
20

<210> 184
<211> 12
<212> PRT
<213> Avian leukosis virus

<400> 184
Asn Gln Ser Trp Thr Met Val Ser Pro Ile Asn Val
1 5 10

<210> 185
<211> 16
<212> PRT
<213> Avian leukosis virus

<400> 185

Met Ile Lys Asn Gly Thr Lys Arg Thr Ala Val Thr Phe Gly Ser Val
 1 5 10 15

<210> 186
 <211> 19
 <212> PRT
 <213> Foot-and-mouth disease virus

<400> 186
 Pro Asn Leu Arg Gly Asp Leu Gln Val Leu Ala Gln Lys Val Ala Arg
 1 5 10 15

Thr Leu Pro

<210> 187
 <211> 26
 <212> PRT
 <213> Foot-and-mouth disease virus

<400> 187
 Arg Tyr Asn Arg Asn Ala Val Pro Asn Leu Arg Gly Asp Leu Gln Val
 1 5 10 15

Leu Ala Gln Lys Val Ala Arg Thr Leu Pro
 20 25

<210> 188
 <211> 17
 <212> PRT
 <213> Hepatitis C virus

<400> 188
 Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys
 1 5 10 15

Leu

<210> 189
 <211> 34
 <212> PRT
 <213> Hepatitis B virus

<400> 189
 Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro Arg Arg
 1 5 10 15

Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg Glu Ser
 20 25 30

Gln Cys

<210> 190
<211> 16
<212> PRT
<213> Hepatitis B virus

<400> 190
Gly Ile Val Asn Leu Glu Asp Pro Ala Ser Arg Asp Leu Val Val Ser
1 5 10 15

<210> 191
<211> 17
<212> PRT
<213> Hepatitis B virus

<400> 191
Gly Ile Val Asn Leu Glu Asp Pro Ala Ser Arg Asp Leu Val Val Ser
1 5 10 15

Cys

<210> 192
<211> 20
<212> PRT
<213> Plasmodium falciparum

<400> 192
Glu Tyr Leu Asn Lys Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser Pro
1 5 10 15

Cys Ser Val Thr
20

<210> 193
<211> 9
<212> PRT
<213> Plasmodium vivax

<220>
<221> MOD_RES
<222> (4)
<223> Xaa at position 4 represents A or D

<400> 193
Asp Arg Ala Xaa Gly Gln Pro Ala Gly
1 5

<210> 194
<211> 9
<212> PRT
<213> Plasmodium vivax

<220>
 <221> MOD_RES
 <222> (5)
 <223> Xaa at position 5 represents G or D

<400> 194
 Ala Asn Gly Ala Xaa Asx Gln Pro Gly
 1 5

<210> 195
 <211> 11
 <212> PRT
 <213> Plasmodium vivax

<400> 195
 Ala Pro Gly Ala Asn Gln Glu Gly Gly Ala Ala
 1 5 10

<210> 196
 <211> 19
 <212> PRT
 <213> Plasmodium vivax

<400> 196
 Tyr Leu Asp Lys Val Arg Ala Thr Val Gly Thr Glu Trp Thr Pro Cys
 1 5 10 15

Ser Val Thr

<210> 197
 <211> 21
 <212> PRT
 <213> Plasmodium vivax

<400> 197
 Pro Ala Gly Asp Arg Ala Asp Gly Gln Pro Ala Gly Asp Arg Ala Ala
 1 5 10 15

Gly Gln Pro Ala Gly
 20

<210> 198
 <211> 18
 <212> PRT
 <213> Plasmodium vivax

<400> 198
 Asp Arg Ala Ala Gly Gln Pro Ala Gly Asp Arg Ala Asp Gly Gln Pro
 1 5 10 15

Ala Gly

<210> 199
<211> 36
<212> PRT
<213> Plasmodium vivax

<400> 199
Ala Asn Gly Ala Gly Asn Gln Pro Gly Ala Asn Gly Ala Gly Asp Gln
1 5 10 15
Pro Gly Ala Asn Gly Ala Asp Asn Gln Pro Gly Ala Asn Gly Ala Asp
20 25 30
Asp Gln Pro Gly
35

<210> 200
<211> 18
<212> PRT
<213> Plasmodium vivax

<400> 200
Ala Asn Gly Ala Gly Asn Gln Pro Gly Ala Asn Gly Ala Gly Asp Gln
1 5 10 15
Pro Gly

<210> 201
<211> 19
<212> PRT
<213> Plasmodium vivax

<400> 201
Gln Ala Asn Gly Ala Asp Asn Gln Pro Gly Ala Asn Gly Ala Asp Asp
1 5 10 15
Gln Pro Gly

<210> 202
<211> 22
<212> PRT
<213> Plasmodium vivax

<400> 202
Ala Pro Gly Ala Asn Gln Glu Gly Gly Ala Ala Ala Pro Gly Ala Asn
1 5 10 15
Gln Glu Gly Gly Ala Ala
20

<210> 203
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Hepatitis B
 virus PCR primer with an NcoI restriction site

 <400> 203
 ttgggccatg gacatcgacc ctta 24

 <210> 204
 <211> 34
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Hepatitis B
 virus PCR primer with an EcoRI restriction site.

 <400> 204
 gcgagctct ttttccaaat taattaacac ccac 34

 <210> 205
 <211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Hepatitis B
 virus PCR primer with EcoRI and SacI restriction
 sites and an inserted lysine codon

 <400> 205
 cgcgagctcg atccagcgtc tagagagacc 30

 <210> 206
 <211> 31
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Hepatitis B
 virus PCR primer with HindIII restriction site

 <400> 206
 cgcaagctta aacaacagta gtctccggaa g 31

 <210> 207
 <211> 14
 <212> PRT

<213> Hepatitis B virus

<400> 207

Cys Gln Glu Lys Gln Leu Asp Glu Asn Ala Asn Val Gln Leu
1 5 10

<210> 208

<211> 13

<212> PRT

<213> Hepatitis B virus

<400> 208

Cys Ser Lys Lys Gly Pro Arg Ala Ser Gly Asn Leu Ile
1 5 10

<210> 209

<211> 21

<212> PRT

<213> Hepatitis B virus

<400> 209

Cys Leu Leu Thr Glu His Arg Met Thr Trp Asp Pro Ala Gln Pro Pro
1 5 10 15

Arg Asp Leu Thr Glu
20

<210> 210

<211> 22

<212> PRT

<213> Hepatitis B virus

<400> 210

Cys Val Lys Arg Met Lys Glu Ser Arg Leu Glu Asp Thr Gln Lys His
1 5 10 15

Arg Val Asp Phe Leu Gln
20

<210> 211

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Cytochrome
P-450 fragment

<400> 211

Cys Met Gln Leu Arg Ser
1 5

<210> 212
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Cytochrome
P-450 fragment

<400> 212
Cys Arg Phe Ser Ile Asn
1 5

<210> 213
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Cytochrome
P-450 fragment

<400> 213
Cys Ala Val Pro Arg
1 5

<210> 214
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Cytochrome
P-450 fragment

<400> 214
Cys Val Ile Pro Arg Ser
1 5

<210> 215
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Cytochrome
P-450 fragment

<400> 215
Cys Phe Ile Pro Val
1 5

<210> 216

<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Cytochrome
P-450 fragment

<400> 216
Cys Thr Val Ser Gly Ala
1 5

<210> 217
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Cytochrome
P-450 fragment

<400> 217
Cys Thr Leu Ser Gly Glu
1 5

<210> 218
<211> 20
<212> PRT
<213> Hepatitis B virus

<400> 218
Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp Leu Val
1 5 10 15

Val Ser Tyr Val
20

<210> 219
<211> 63
<212> DNA
<213> Hepatitis B virus

<400> 219
gctacctggg tgggtgttaa tttggaagat ccagcgtcta gagacctagt agtcagttat 60
gtc 63

<210> 220
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: K inserted at

amino acid position 75 of Hepatitis B core

<400> 220

Thr Trp Val Gly Val Lys Asn Leu Glu Asp Pro Ala Ser Arg Asp Leu
1 5 10 15

Val Val Ser Tyr Val
20

<210> 221

<211> 41

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Lysine codon
aaa inserted to make HBC- K75 mutant

<400> 221

gctacctggg tgggtgttaa aaatttggaa gatccagcgt c

41

<210> 222

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: K inserted at
amino acid position 76 of Hepatitis B core

<400> 222

Thr Trp Val Gly Val Asn Lys Leu Glu Asp Pro Ala Ser Arg Asp Leu
1 5 10 15

Val Val Ser Tyr Val
20

<210> 223

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Lysine codon
aaa inserted to make HBC-K76 mutant

<400> 223

ttaataaatt ggaagatcca gcgtcta

27

<210> 224

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: K inserted at position 77 of Hepatitis B virus core

<400> 224

Thr Trp Val Gly Val Asn Leu Lys Glu Asp Pro Ala Ser Arg Asp Leu
1 5 10 15

Val Val Ser Tyr Val
20

<210> 225

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Lysine codon aaa inserted to make HBc-K77 mutant

<400> 225

ttaatttgaa agaagatcca gcgtcta

27

<210> 226

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: K inserted at amino acid position 78 of Hepatitis B core

<400> 226

Thr Trp Val Gly Val Asn Leu Glu Lys Asp Pro Ala Ser Arg Asp Leu
1 5 10 15

Val Val Ser Tyr Val
20

<210> 227

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Lysine codon aaa inserted to make HBc-K78 mutant

<400> 227

ttaatttgga aaaagatcca gcgtctagag ac

32

<210> 228

<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: K inserted at
amino acid position 79 fo Hepatitis B core.

<400> 228
Thr Trp Val Gly Val Asn Leu Glu Asp Lys Pro Ala Ser Arg Asp Leu
1 5 10 15
Val Val Ser Tyr Val
20

<210> 229
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Lysine codon
aaa inserted to make HBC-K79 mutant

<400> 229
ttaatttgga agataaacca gcgtagag acctag 36

<210> 230
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: K inserted at
amino acid position 79 of Hepatitis B core

<400> 230
Thr Trp Val Gly Val Asn Leu Glu Asp Pro Lys Ala Ser Arg Asp Leu
1 5 10 15
Val Val Ser Tyr Val
20

<210> 231
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Lysine codon
aaa inserted to make HBC-K80 mutant

<400> 231
ttaatttgga agatcaaaa gcgtagag acctagtag 39

<210> 232
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: K inserted at
amino acid position 81 of Hepatitis B core

<400> 232
Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Lys Ser Arg Asp Leu
1 5 10 15
Val Val Ser Tyr Val
20

<210> 233
<211> 43
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Lysine codon
aaa inserted to make HBc-K81 mutant

<400> 233
ttaatttgga agatccagcg aaatctagag acctagtagt cag 43

<210> 234
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: K inserted at
amino acid position 82 of Hepatitis B core

<400> 234
Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Lys Arg Asp Leu
1 5 10 15
Val Val Ser Tyr Val
20

<210> 235
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Lysine codon
aaa inserted to make HBc-K82 mutant

<400> 235
ttaatttgga agatccagcg tctaaaagag acctagtagt cagtt

45

<210> 236
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: K inserted at
amino acid position 83 to Hepatitis B core

<400> 236
Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Lys Asp Leu
1 5 10 15
Val Val Ser Tyr Val
20

<210> 237
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Lysine codon
aaa inserted to make HBc-K83 mutant

<400> 237
ttaatttgga agatccagcg tctagaaaag acctagtagt cagttatgtc

50

<210> 238
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: K inserted at
amino acid position 83 of Hepatitis B core

<400> 238
Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp Lys Leu
1 5 10 15
Val Val Ser Tyr Val
20

<210> 239
<211> 50
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Lysine codon
aaa inserted to make HBc-K84 mutant

<400> 239

ttaatttgga agatccagcg tctagagaca aactagtagt cagttatgtc

50

<210> 240

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: K inserted at
amino acid position 85 of Hepatitis B core

<400> 240

Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp Leu Lys
1 5 10 15

Val Val Ser Tyr Val
20

<210> 241

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Lysine codon
aaa inserted to make HBc-K85 mutant

<400> 241

ctcgagagac ctaaaagtag tcagttatgt c

31

<210> 242

<211> 36

<212> PRT

<213> Hepatitis B virus

<400> 242

Gly Ile Gln Trp Met Glu Trp Asp Arg Glu Ile Asn Asn Tyr Thr Ser
1 5 10 15

Leu Ile His Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn
20 25 30

Glu Gln Glu Leu
35

<210> 243

<211> 102

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: human
cytochrome P450

<400> 243

aatttggatg tgggaagatc gtgagatcaa caattatacc agcctgatac attctttaat 60
tgaagagtcc cagaaccaac aggagaaaaa tgaacaagag ct 102

<210> 244

<211> 94

<212> DNA

<213> Hepatitis B virus

<400> 244

cttggttcatt tttctcctgt tggttctggg actcttcaat taaagaatgt atcaggctgg 60
tataattggt gatctcacga tcttcccaca tcca 94

<210> 245

<211> 6

<212> PRT

<213> Hepatitis B virus

<400> 245

Met Asp Ile Asp Pro Tyr
1 5

<210> 246

<211> 217

<212> PRT

<213> *Spermophilus variegatus*

<400> 246

Met Tyr Leu Phe His Leu Cys Leu Val Phe Ala Cys Val Pro Cys Pro
1 5 10 15

Thr Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Asp Met Asp
20 25 30

Ile Asp Pro Tyr Lys Glu Phe Gly Ser Ser Tyr Gln Leu Leu Asn Phe
35 40 45

Leu Pro Leu Asp Phe Phe Pro Asp Leu Asn Ala Leu Val Asp Thr Ala
50 55 60

Ala Ala Leu Tyr Glu Glu Glu Leu Thr Gly Arg Glu His Cys Ser Pro
65 70 75 80

His His Thr Ala Ile Arg Gln Ala Leu Val Cys Trp Glu Glu Leu Thr
85 90 95

Arg Leu Ile Thr Trp Met Ser Glu Asn Thr Thr Glu Glu Val Arg Arg
100 105 110

Ile Ile Val Asp His Val Asn Asn Thr Trp Gly Leu Lys Val Arg Gln
 115 120 125
 Thr Leu Trp Phe His Leu Ser Cys Leu Thr Phe Gly Gln His Thr Val
 130 135 140
 Gln Glu Phe Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Ala Pro
 145 150 155 160
 Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu His Thr
 165 170 175
 Val Ile Arg Arg Arg Gly Gly Ser Arg Ala Ala Arg Ser Pro Arg Arg
 180 185 190
 Arg Thr Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg
 195 200 205
 Arg Ser Gln Ser Pro Ala Ser Asn Cys
 210 215

<210> 247
 <211> 183
 <212> PRT
 <213> Hepatitis B virus

<400> 247
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1 5 10 15
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
 20 25 30
 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
 35 40 45
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
 50 55 60
 Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala
 65 70 75 80
 Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys
 85 90 95
 Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
 100 105 110
 Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
 115 120 125
 Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
 130 135 140
 Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr

<400> 249

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Asn Asn Leu Glu Asp Pro Ala
65 70 75 80

Ser Arg Asp Leu Val Val Asn Tyr Val Asn Thr Asn Val Gly Leu Lys
85 90 95

Ile Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
100 105 110

Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140

Glu Thr Thr Val Val Arg Arg Arg Asp Arg Gly Arg Ser Pro Arg Arg
145 150 155 160

Arg Thr Pro Ser Pro Arg Arg Arg Pro Ser Gln Ser Pro Arg Arg Arg
165 170 175

Arg Ser Gln Ser Arg Glu Ser Gln Cys
180 185

<210> 250

<211> 183

<212> PRT

<213> Hepatitis B virus

<400> 250

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30

Thr Ala Ala Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Thr Asn Leu Glu Asp Pro Ala

65 70 75 80
 Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Val Gly Leu Lys
 85 90 95
 Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
 100 105 110
 Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
 115 120 125
 Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
 130 135 140
 Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr
 145 150 155 160
 Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser
 165 170 175
 Gln Ser Arg Glu Ser Gln Cys
 180

<210> 251
 <211> 183
 <212> PRT
 <213> Marmota monax

<400> 251
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ser Ser Tyr Gln Leu Leu
 1 5 10 15
 Asn Phe Leu Pro Leu Asp Phe Phe Pro Asp Leu Asn Ala Leu Val Asp
 20 25 30
 Thr Ala Thr Ala Leu Tyr Glu Glu Glu Leu Thr Gly Arg Glu His Cys
 35 40 45
 Ser Pro His His Thr Ala Ile Arg Gln Ala Leu Val Cys Trp Asp Glu
 50 55 60
 Leu Thr Lys Leu Ile Ala Trp Met Ser Ser Asn Ile Thr Ser Glu Gln
 65 70 75 80
 Val Arg Thr Ile Ile Val Asn His Val Asn Asp Thr Trp Gly Leu Lys
 85 90 95
 Val Arg Gln Ser Leu Trp Phe His Leu Ser Cys Leu Thr Phe Gly Gln
 100 105 110
 His Thr Val Gln Glu Phe Leu Val Ser Phe Gly Val Trp Ile Arg Thr
 115 120 125
 Pro Ala Pro Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
 130 135 140

Glu His Thr Val Ile Arg Arg Arg Gly Gly Ala Arg Ala Ser Arg Ser
 145 150 155 160

Pro Arg Arg Arg Thr Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro
 165 170 175

Arg Arg Arg Arg Ser Gln Cys
 180

<210> 252
 <211> 26
 <212> PRT
 <213> Bos taurus

<400> 252
 Ser Thr Pro Pro Leu Pro Trp Pro Trp Ser Pro Ala Ala Leu Arg Leu
 1 5 10 15

Leu Gln Arg Pro Pro Glu Glu Pro Ala Ala
 20 25

<210> 253
 <211> 17
 <212> PRT
 <213> Ebola virus

<400> 253
 Ala Thr Gln Val Glu Gln His His Arg Arg Thr Asp Asn Asp Ser Thr
 1 5 10 15

Ala

<210> 254
 <211> 17
 <212> PRT
 <213> Ebola virus

<400> 254
 His Asn Thr Pro Val Tyr Lys Leu Asp Ile Ser Glu Ala Thr Gln Val
 1 5 10 15

Glu

<210> 255
 <211> 17
 <212> PRT
 <213> Ebola virus

<400> 255
 Gly Lys Leu Gly Leu Ile Thr Asn Thr Ile Ala Gly Val Ala Val Leu
 1 5 10 15

Ile

<210> 256

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:flexible linker
arm

<400> 256

Gly Gly Gly Gly Ser Gly Gly Gly Gly Thr
1 5 10

<210> 257

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: flexible
linker arm

<400> 257

Gly Gly Gly Gly Ser Gly Gly Gly Gly
1 5

<210> 258

<211> 513

<212> DNA

<213> Plasmodium falciparum

<220>

<221> CDS

<222> (1)..(507)

<400> 258

atg gac atc gac cct tat aaa gaa ttt gga gct act gtg gag tta ctc 48
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
1 5 10 15

tcg ttt ttg cct tct gac ttc ttt cct tca gta cga gat ctt cta gat 96
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30

acc gcc tca gct ctg tat cgg gaa gcc tta gag tct cct gag cat tgt 144
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
35 40 45

tca cct cac cat act gca ctc agg caa gca att ctt tgc tgg ggg gaa 192
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu

50	55	60	
cta atg act cta gct acc tgg gtg ggt gtt aat ttg gaa gat gga att			240
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile			
65	70	75	80
aac gct aat ccg aac gct aat ccg aac gct aat ccg aac gct aat ccg			288
Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro			
	85	90	95
gag ctc cca gcg tct aga gac cta gta gtc agt tat gtc aac act aat			336
Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn			
	100	105	110
atg ggc cta aag ttc agg caa ctc ttg tgg ttt cac att tct tgt ctc			384
Met Gly Leu Lys Phe Arg Gln Leu Trp Phe His Ile Ser Cys Leu			
	115	120	125
act ttt gga aga gaa aca gtt ata gag tat ttg gtg tct ttc gga gtg			432
Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val			
	130	135	140
tgg att cgc act cct cca gct tat aga cca cca aat gcc cct atc cta			480
Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu			
	145	150	155
tca aca ctt ccg gag act act gtt gtt tagtaa			513
Ser Thr Leu Pro Glu Thr Thr Val Val			
	165		

<210> 259
 <211> 169
 <212> PRT
 <213> Plasmodium falciparum

<400> 259
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
1 5 10 15
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
35 40 45
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
50 55 60
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile
65 70 75 80
Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
85 90 95
Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn
100 105 110

Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu
115 120 125

Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val
130 135 140

Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu
145 150 155 160

Ser Thr Leu Pro Glu Thr Thr Val Val
165

<210> 260
<211> 513
<212> DNA
<213> Plasmodium falciparum

<220>
<221> CDS
<222> (1)..(507)

<400> 260
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Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
1 5 10 15

tcg ttt ttg cct tct gac ttc ttt cct tca gta cga gat ctt cta gat 96
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30

acc gcc tca gct ctg tat cgg gaa gcc tta gag tct cct gag cat tgt 144
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
35 40 45

tca cct cac cat act gca ctc agg caa gca att ctt tgc tgg ggg gaa 192
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
50 55 60

cta atg act cta gct acc tgg gtg ggt gtt aat ttg gaa gga att aac 240
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Gly Ile Asn
65 70 75 80

gct aat ccg aac gct aat ccg aac gct aat ccg aac gct aat ccg gag 288
Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Glu
85 90 95

ctc gat cca gcg tct aga gac cta gta gtc agt tat gtc aac act aat 336
Leu Asp Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn
100 105 110

atg ggc cta aag ttc agg caa ctc ttg tgg ttt cac att tct tgt ctc 384
Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu
115 120 125

act ttt gga aga gaa aca gtt ata gag tat ttg gtg tct ttc gga gtg 432
 Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val
 130 135 140

tgg att cgc act cct cca gct tat aga cca cca aat gcc cct atc cta 480
 Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu
 145 150 155 160

tca aca ctt ccg gag act act gtt gtt tagtaa 513
 Ser Thr Leu Pro Glu Thr Thr Val Val
 165

<210> 261

<211> 169

<212> PRT

<213> Plasmodium falciparum

<400> 261

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
 20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
 35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
 50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Gly Ile Asn
 65 70 75 80

Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Glu
 85 90 95

Leu Asp Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn
 100 105 110

Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu
 115 120 125

Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val
 130 135 140

Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu
 145 150 155 160

Ser Thr Leu Pro Glu Thr Thr Val Val
 165

<210> 262

<211> 519

<212> DNA

<213> Plasmodium falciparum

<220>

<221> CDS

<222> (1) .. (519)

<400> 262

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tcg ttt ttg cct tct gac ttc ttt cct tca gta cga gat ctt cta gat	96
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp	
20 25 30	
acc gcc tca gct ctg tat cgg gaa gcc tta gag tct cct gag cat tgt	144
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys	
35 40 45	
tca cct cac cat act gca ctc agg caa gca att ctt tgc tgg ggg gaa	192
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu	
50 55 60	
cta atg act cta gct acc tgg gtg ggt gtt aat ttg gaa gat cca gcg	240
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala	
65 70 75 80	
tct aga gac cta gta gtc agt tat gtc aac act aat atg ggc cta aag	288
Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys	
85 90 95	
ttc agg caa ctc ttg tgg ttt cac att tct tgt ctc act ttt gga aga	336
Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg	
100 105 110	
gaa aca gtt ata gag tat ttg gtg tct ttc gga gtg tgg att cgc act	384
Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr	
115 120 125	
cct cca gct tat aga cca cca aat gcc cct atc cta tca aca ctt ccg	432
Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro	
130 135 140	
gag act act gtt gtt gga att gaa tat ctg aac aaa atc cag aac tct	480
Glu Thr Thr Val Val Gly Ile Glu Tyr Leu Asn Lys Ile Gln Asn Ser	
145 150 155 160	
ctg tcc acc gaa tgg tct ccg tgc tcc gtt acc tag taa	519
Leu Ser Thr Glu Trp Ser Pro Cys Ser Val Thr	
165 170	

<210> 263

<211> 171

<212> PRT

<213> Plasmodium falciparum

<400> 263

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Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
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Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
          20           25           30
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
      35           40           45
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
      50           55           60
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala
      65           70           75           80
Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys
          85           90           95
Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
      100           105           110
Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
      115           120           125
Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
      130           135           140
Glu Thr Thr Val Val Gly Ile Glu Tyr Leu Asn Lys Ile Gln Asn Ser
      145           150           155           160
Leu Ser Thr Glu Trp Ser Pro Cys Ser Val Thr
          165           170

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<210> 264

<211> 516

<212> DNA

<213> Plasmodium falciparum

<220>

<221> CDS

<222> (1) .. (516)

<400> 264

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Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1           5           10           15

tcg ttt ttg cct tct gac ttc ttt cct tca gta cga gat ctt cta gat      96
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
          20           25           30

acc gcc tca gct ctg tat cgg gaa gcc tta gag tct cct gag cat tgt      144
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
      35           40           45

tca cct cac cat act gca ctc agg caa gca att ctt tgc tgg ggg gaa      192
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
      50           55           60

cta atg act cta gct acc tgg gtg ggt gtt aat ttg gaa gat gga att      240
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile
      65           70           75           80

aac gct aat ccg aac gct aat ccg aac gct aat ccg aac gct aat ccg      288

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Asn	Ala	Asn	Pro	Asn	Ala	Asn	Pro	Asn	Ala	Asn	Pro	Asn	Ala	Asn	Pro		
				85				90						95			
gag	ctc	cca	gcg	tct	aga	gac	cta	gta	gtc	agt	tat	gtc	aac	act	aat	336	
Glu	Leu	Pro	Ala	Ser	Arg	Asp	Leu	Val	Val	Ser	Tyr	Val	Asn	Thr	Asn		
			100					105					110				
atg	ggc	cta	aag	ttc	agg	caa	ctc	ttg	tgg	ttt	cac	att	tct	tgt	ctc	384	
Met	Gly	Leu	Lys	Phe	Arg	Gln	Leu	Leu	Trp	Phe	His	Ile	Ser	Cys	Leu		
			115				120					125					
act	ttt	gga	aga	gaa	aca	gtt	ata	gag	tat	ttg	gtg	tct	ttc	gga	gtg	432	
Thr	Phe	Gly	Arg	Glu	Thr	Val	Ile	Glu	Tyr	Leu	Val	Ser	Phe	Gly	Val		
	130					135					140						
tgg	att	cgc	act	cct	cca	gct	tat	aga	cca	cca	aat	gcc	cct	atc	cta	480	
Trp	Ile	Arg	Thr	Pro	Pro	Ala	Tyr	Arg	Pro	Pro	Asn	Ala	Pro	Ile	Leu		
145					150				155						160		
tca	aca	ctt	ccg	gag	act	act	gtt	gtt	tgc	tag	taa					516	
Ser	Thr	Leu	Pro	Glu	Thr	Thr	Val	Val	Cys								
				165					170								

<210> 265
 <211> 170
 <212> PRT
 <213> Plasmodium falciparum

<400> 265																
Met	Asp	Ile	Asp	Pro	Tyr	Lys	Glu	Phe	Gly	Ala	Thr	Val	Glu	Leu	Leu	
1				5					10					15		
Ser	Phe	Leu	Pro	Ser	Asp	Phe	Phe	Pro	Ser	Val	Arg	Asp	Leu	Leu	Asp	
			20					25					30			
Thr	Ala	Ser	Ala	Leu	Tyr	Arg	Glu	Ala	Leu	Glu	Ser	Pro	Glu	His	Cys	
		35					40					45				
Ser	Pro	His	His	Thr	Ala	Leu	Arg	Gln	Ala	Ile	Leu	Cys	Trp	Gly	Glu	
	50					55					60					
Leu	Met	Thr	Leu	Ala	Thr	Trp	Val	Gly	Val	Asn	Leu	Glu	Asp	Gly	Ile	
	65				70				75						80	
Asn	Ala	Asn	Pro	Asn	Ala	Asn	Pro	Asn	Ala	Asn	Pro	Asn	Ala	Asn	Pro	
				85					90					95		
Glu	Leu	Pro	Ala	Ser	Arg	Asp	Leu	Val	Val	Ser	Tyr	Val	Asn	Thr	Asn	
			100					105					110			
Met	Gly	Leu	Lys	Phe	Arg	Gln	Leu	Leu	Trp	Phe	His	Ile	Ser	Cys	Leu	
		115					120					125				
Thr	Phe	Gly	Arg	Glu	Thr	Val	Ile	Glu	Tyr	Leu	Val	Ser	Phe	Gly	Val	
	130					135					140					
Trp	Ile	Arg	Thr	Pro	Pro	Ala	Tyr	Arg	Pro	Pro	Asn	Ala	Pro	Ile	Leu	
145					150				155						160	
Ser	Thr	Leu	Pro	Glu	Thr	Thr	Val	Val	Cys							
				165					170							

<210> 266
 <211> 579

<212> DNA

<213> Plasmodium falciparum

<220>

<221> CDS

<222> (1)..(579)

<400> 266

atg gac atc gac cct tat aaa gaa ttt gga gct act gtg gag tta ctc	48
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu	
1 5 10 15	
tcg ttt ttg cct tct gac ttc ttt cct tca gta cga gat ctt cta gat	96
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp	
20 25 30	
acc gcc tca gct ctg tat cgg gaa gcc tta gag tct cct gag cat tgt	144
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys	
35 40 45	
tca cct cac cat act gca ctc agg caa gca att ctt tgc tgg ggg gaa	192
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu	
50 55 60	
cta atg act cta gct acc tgg gtg ggt gtt aat ttg gaa gat gga att	240
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile	
65 70 75 80	
aac gct aat ccg aac gct aat ccg aac gct aat ccg aac gct aat ccg	288
Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro	
85 90 95	
gag ctc cca gcg tct aga gac cta gta gtc agt tat gtc aac act aat	336
Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn	
100 105 110	
atg ggc cta aag ttc agg caa ctc ttg tgg ttt cac att tct tgt ctc	384
Met Gly Leu Lys Phe Arg Gln Leu Trp Phe His Ile Ser Cys Leu	
115 120 125	
act ttt gga aga gaa aca gtt ata gag tat ttg gtg tct ttc gga gtg	432
Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val	
130 135 140	
tgg att cgc act cct cca gct tat aga cca cca aat gcc cct atc cta	480
Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu	
145 150 155 160	
tca aca ctt ccg gag act act gtt gtt gga att gaa tat ctg aac aaa	528
Ser Thr Leu Pro Glu Thr Thr Val Val Gly Ile Glu Tyr Leu Asn Lys	
165 170 175	
atc cag aac tct ctg tcc acc gaa tgg tct ccg tgc tcc gtt acc tag	576
Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser Pro Cys Ser Val Thr	
180 185 190	
taa	579

<210> 267
 <211> 191
 <212> PRT
 <213> Plasmodium falciparum

<400> 267
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1 5 10 15
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
 20 25 30
 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
 35 40 45
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
 50 55 60
 Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile
 65 70 75 80
 Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
 85 90 95
 Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn
 100 105 110
 Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu
 115 120 125
 Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val
 130 135 140
 Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu
 145 150 155 160
 Ser Thr Leu Pro Glu Thr Thr Val Val Gly Ile Glu Tyr Leu Asn Lys
 165 170 175
 Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser Pro Cys Ser Val Thr
 180 185 190

<210> 268
 <211> 591
 <212> DNA
 <213> Plasmodium falciparum

<220>
 <221> CDS
 <222> (1)..(591)

<400> 268
 atg gac atc gac cct tat aaa gaa ttt gga gct act gtg gag tta ctc 48
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1 5 10 15
 tcg ttt ttg cct tct gac ttc ttt cct tca gta cga gat ctt cta gat 96
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
 20 25 30
 acc gcc tca gct ctg tat cgg gaa gcc tta gag tct cct gag cat tgt 144
 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
 35 40 45

tca cct cac cat act gca ctc agg caa gca att ctt tgc tgg ggg gaa	192
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu	
50 55 60	
cta atg act cta gct acc tgg gtg ggt gtt aat ttg gaa gat gga att	240
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile	
65 70 75 80	
aac gcg aat ccg aac gtg gat ccg aat gcc aac cct aac gcc aac cca	288
Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro	
85 90 95	
aat gcg aac cca gag ctc cca gcg tct aga gac cta gta gtc agt tat	336
Asn Ala Asn Pro Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr	
100 105 110	
gtc aac act aat atg ggc cta aag ttc agg caa ctc ttg tgg ttt cac	384
Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His	
115 120 125	
att tct tgt ctc act ttt gga aga gaa aca gtt ata gag tat ttg gtg	432
Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val	
130 135 140	
tct ttc gga gtg tgg att cgc act cct cca gct tat aga cca cca aat	480
Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn	
145 150 155 160	
gcc cct atc cta tca aca ctt ccg gag act act gtt gtt gga att gaa	528
Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Val Val Gly Ile Glu	
165 170 175	
tat ctg aac aaa atc cag aac tct ctg tcc acc gaa tgg tct ccg tgc	576
Tyr Leu Asn Lys Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser Pro Cys	
180 185 190	
tcc gtt acc tag taa	591
Ser Val Thr	
195	

<210> 269

<211> 195

<212> PRT

<213> Plasmodium falciparum

<400> 269

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu	
1 5 10 15	
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp	
20 25 30	
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys	
35 40 45	
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu	
50 55 60	
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile	

65					70					75				80	
Asn	Ala	Asn	Pro	Asn	Val	Asp	Pro	Asn	Ala	Asn	Pro	Asn	Ala	Asn	Pro
				85					90					95	
Asn	Ala	Asn	Pro	Glu	Leu	Pro	Ala	Ser	Arg	Asp	Leu	Val	Val	Ser	Tyr
			100					105					110		
Val	Asn	Thr	Asn	Met	Gly	Leu	Lys	Phe	Arg	Gln	Leu	Leu	Trp	Phe	His
		115					120					125			
Ile	Ser	Cys	Leu	Thr	Phe	Gly	Arg	Glu	Thr	Val	Ile	Glu	Tyr	Leu	Val
	130					135					140				
Ser	Phe	Gly	Val	Trp	Ile	Arg	Thr	Pro	Pro	Ala	Tyr	Arg	Pro	Pro	Asn
145					150					155					160
Ala	Pro	Ile	Leu	Ser	Thr	Leu	Pro	Glu	Thr	Thr	Val	Val	Gly	Ile	Glu
				165				170					175		
Tyr	Leu	Asn	Lys	Ile	Gln	Asn	Ser	Leu	Ser	Thr	Glu	Trp	Ser	Pro	Cys
			180					185					190		
Ser	Val	Thr													
		195													

<210> 270
 <211> 561
 <212> DNA
 <213> Human immunodeficiency virus type 1

<220>
 <221> CDS
 <222> (1)..(561)

<400> 270																
atg	gac	atc	gac	cct	tat	aaa	gaa	ttt	gga	gct	act	gtg	gag	tta	ctc	48
Met	Asp	Ile	Asp	Pro	Tyr	Lys	Glu	Phe	Gly	Ala	Thr	Val	Glu	Leu	Leu	
1				5					10					15		
tcg	ttt	ttg	cct	tct	gac	ttc	ttt	cct	tca	gta	cga	gat	ctt	cta	gat	96
Ser	Phe	Leu	Pro	Ser	Asp	Phe	Phe	Pro	Ser	Val	Arg	Asp	Leu	Leu	Asp	
			20					25					30			
acc	gcc	tca	gct	ctg	tat	cgg	gaa	gcc	tta	gag	tct	cct	gag	cat	tgt	144
Thr	Ala	Ser	Ala	Leu	Tyr	Arg	Glu	Ala	Leu	Glu	Ser	Pro	Glu	His	Cys	
			35				40					45				
tca	cct	cac	cat	act	gca	ctc	agg	caa	gca	att	ctt	tgc	tgg	ggg	gaa	192
Ser	Pro	His	His	Thr	Ala	Leu	Arg	Gln	Ala	Ile	Leu	Cys	Trp	Gly	Glu	
	50					55				60						
cta	atg	act	cta	gct	acc	tgg	gtg	ggg	gtt	aat	ttg	gaa	gat	gga	att	240
Leu	Met	Thr	Leu	Ala	Thr	Trp	Val	Gly	Val	Asn	Leu	Glu	Asp	Gly	Ile	
	65				70				75						80	
caa	tgg	atg	gaa	tgg	gat	cgt	gag	atc	aac	aat	tat	acc	agc	ctg	ata	288
Gln	Trp	Met	Glu	Trp	Asp	Arg	Glu	Ile	Asn	Asn	Tyr	Thr	Ser	Leu	Ile	
				85					90					95		
cat	tct	tta	att	gaa	gag	tcc	cag	aac	caa	cag	gag	aaa	aat	gaa	caa	336
His	Ser	Leu	Ile	Glu	Glu	Ser	Gln	Asn	Gln	Gln	Glu	Lys	Asn	Glu	Gln	
			100					105					110			

gag ctc cca gcg tct aga gac cta gta gtc agt tat gtc aac act aat	384
Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn	
115 120 125	
atg ggc cta aag ttc agg caa ctc ttg tgg ttt cac att tct tgt ctc	432
Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu	
130 135 140	
act ttt gga aga gaa aca gtt ata gag tat ttg gtg tct ttc gga gtg	480
Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val	
145 150 155 160	
tgg att cgc act cct cca gct tat aga cca cca aat gcc cct atc cta	528
Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu	
165 170 175	
tca aca ctt ccg gag act act gtt gtt tag taa	561
Ser Thr Leu Pro Glu Thr Thr Val Val	
180 185	

<210> 271
 <211> 185
 <212> PRT
 <213> Human immunodeficiency virus type 1

<400> 271																	
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu																	
1 5 10 15																	
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp																	
20 25 30																	
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys																	
35 40 45																	
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu																	
50 55 60																	
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile																	
65 70 75 80																	
Gln Trp Met Glu Trp Asp Arg Glu Ile Asn Asn Tyr Thr Ser Leu Ile																	
85 90 95																	
His Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln																	
100 105 110																	
Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn																	
115 120 125																	
Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu																	
130 135 140																	
Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val																	
145 150 155 160																	
Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu																	
165 170 175																	
Ser Thr Leu Pro Glu Thr Thr Val Val																	
180 185																	

<210> 272
 <211> 564

<212> DNA

<213> Human immunodeficiency virus type 1

<220>

<221> CDS

<222> (1)..(564)

<400> 272

atg gac atc gac cct tat aaa gaa ttt gga gct act gtg gag tta ctc	48
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu	
1 5 10 15	
tcg ttt ttg cct tct gac ttc ttt cct tca gta cga gat ctt cta gat	96
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp	
20 25 30	
acc gcc tca gct ctg tat cgg gaa gcc tta gag tct cct gag cat tgt	144
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys	
35 40 45	
tca cct cac cat act gca ctc agg caa gca att ctt tgc tgg ggg gaa	192
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu	
50 55 60	
cta atg act cta gct acc tgg gtg ggt gtt aat ttg gaa gat gga att	240
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile	
65 70 75 80	
caa tgg atg gaa tgg gat cgt gag atc aac aat tat acc agc ctg ata	288
Gln Trp Met Glu Trp Asp Arg Glu Ile Asn Asn Tyr Thr Ser Leu Ile	
85 90 95	
cat tct tta att gaa gag tcc cag aac caa cag gag aaa aat gaa caa	336
His Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln	
100 105 110	
gag ctc cca gcg tct aga gac cta gta gtc agt tat gtc aac act aat	384
Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn	
115 120 125	
atg ggc cta aag ttc agg caa ctc ttg tgg ttt cac att tct tgt ctc	432
Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu	
130 135 140	
act ttt gga aga gaa aca gtt ata gag tat ttg gtg tct ttc gga gtg	480
Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val	
145 150 155 160	
tgg att cgc act cct cca gct tat aga cca cca aat gcc cct atc cta	528
Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu	
165 170 175	
tca aca ctt ccg gag act act gtt gtt tgc tag taa	564
Ser Thr Leu Pro Glu Thr Thr Val Val Cys	
180 185	

<210> 273
 <211> 186
 <212> PRT
 <213> Human immunodeficiency virus type 1

<400> 273
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1 5 10 15
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
 20 25 30
 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
 35 40 45
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
 50 55 60
 Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile
 65 70 75 80
 Gln Trp Met Glu Trp Asp Arg Glu Ile Asn Asn Tyr Thr Ser Leu Ile
 85 90 95
 His Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln
 100 105 110
 Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn
 115 120 125
 Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu
 130 135 140
 Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val
 145 150 155 160
 Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu
 165 170 175
 Ser Thr Leu Pro Glu Thr Thr Val Val Cys
 180 185

<210> 274
 <211> 651
 <212> DNA
 <213> *Spermophilus variegatus*

<400> 274
 atgtatcttt ttcacctgtg ccttggtttt gcctgtgttc catgtcctac tgttcaagcc 60
 tccaagctgt gccttggatg gctttgggac atggacatag atccctataa agaatttggt 120
 tcttcttctc agttgttgaa ttttcttctc ttggactttt ttctgatct caatgcattg 180
 gtggacactg ctgctgctct ttatgaagaa gaattaacag gtagggagca ttgttctcct 240
 catcatactg ctattagaca ggccttagtg tgttggaag aattaactag attaattaca 300
 tggatgagtg aaaatacaac agaagaagtt agaagaatta ttgttgatca tgtcaataat 360
 acttggggac ttaaagtaag acagacttta tggtttcatt tatcatgtct tacttttgga 420
 caacacacag ttcaagaatt tttggtagt tttggagtat ggattagaac tccagctcct 480
 tatagaccac ctaatgcacc cattttatca actcttcgg aacatacagt cattaggaga 540
 agaggaggtt caagagctgc taggtcccc cgaagacgca ctccctctcc tcgcaggaga 600
 aggtctcaat caccgcgtcg cagacgtct caatctccag ctccaactg c 651

<210> 275
 <211> 549
 <212> DNA
 <213> Hepatitis B virus

```

<400> 275
atggacatcg acccttataa agaatttggg gctactgtgg agttactctc gtttttgcct 60
tctgacttct ttccttcagt acgagatctt ctagataccg cctcagctct gtatcgggaa 120
gccttagagt ctctgagca ttgttcacct caccatactg cactcaggca agcaattctt 180
tgctgggggg aactaatgac tctagctacc tgggtgggtg ttaatttggg agatccagcg 240
tctagagacc tagtagtcag ttatgtcaac actaatatgg gcctaaagtt caggcaactc 300
ttgtggtttc acatttcttg tctcactttt ggaagagaaa cagttataga gtatttgggtg 360
tctttcggag tgtggattcg cactcctcca gcttatagac caccaaagtc ccctatccta 420
tcaacacttc cggagactac tggtgttaga cgacgaggca ggtcccctag aagaagaact 480
ccctcgctc gcagacgaag gtctcaatcg ccgcgtcgca gaagatctca atctcgggaa 540
tctcaatgt

```

```

<210> 276
<211> 555
<212> DNA
<213> Hepatitis B virus

```

```

<400> 276
atggacattg acccttataa agaatttggg gctactgtgg agttactctc gtttttgcct 60
tctgacttct ttccttcctg acgagatctc ctagacaccg cctcagctct gtatcgagaa 120
gccttagagt ctctgagca ttgttcacct caccatactg cactcaggca agccattctc 180
tgctgggggg aattgatgac tctagctacc tgggtgggtg ataatttggc agatccagca 240
tccagagatc tagtagtcaa ttatgttaat actaacatgg gtttaaagat caggcaacta 300
ttgtggtttc atatatcttg ccttactttt ggaagagaga ctgtacttga atatttggtc 360
tctttcggag tgtggattcg cactcctcca gcctatagac caccaaagtc ccctatctta 420
tcaacacttc cggaaactac tggtgttaga cgacgggacc gaggcaggtc ccctagaaga 480
agaactccct cgcctcgag acgcagatct caatcgccgc gtcgcagaag atctcaatct 540
cggaatctc aatgt

```

```

<210> 277
<211> 555
<212> DNA
<213> Hepatitis B virus

```

```

<400> 277
atggacattg acccttataa agaatttggg gctactgtgg agttactctc gtttttgcct 60
tctgacttct ttccttcctg cagagatctc ctagacaccg cctcagctct gtatcgagaa 120
gccttagagt ctctgagca ttgttcacct caccatactg cactcaggca agccattctc 180
tgctgggggg aattgatgac tctagctacc tgggtgggtg ataatttggg agatccagca 240
tctagggatc ttgtagtaaa ttatgttaat actaacgtgg gtttaaagat caggcaacta 300
ttgtggtttc atatatcttg ccttactttt ggaagagaga ctgtacttga atatttggtc 360
tctttcggag tgtggattcg cactcctcca gcctatagac caccaaagtc ccctatctta 420
tcaacacttc cggaaactac tggtgttaga cgacgggacc gaggcaggtc ccctagaaga 480
agaactccct cgcctcgag acgcagatct ccacgccgc gtcgcagaag atctcaatct 540
cggaatctc aatgt

```

```

<210> 278
<211> 549
<212> DNA
<213> Hepatitis B virus

```

```

<400> 278
atggacattg acccttataa agaatttggg gctactgtgg agttactctc gtttttgcct 60
tctgacttct ttccttcctg acgagatctt ctagataccg ccgcagctct gtatcgggat 120

```



```

gccttagagt ctcctgagca ttgttcacct caccatactg cactcaggca agcaattctt 180
tgctggggag acttaatgac tctagctacc tgggtgggta ctaattttaga agatccagca 240
tctagggacc tagtagtcag ttatgtcaac actaatgtgg gcctaaagtt cagacaatta 300
ttgtggtttc acatttcttg tctcactttt ggaagagaaa cggttctaga gtatttgggtg 360
tcttttggag tgtggattcg cactcctcca gcttatagac caccaaagtc ccctatccta 420
tcaacgcttc cggagactac tgttgttaga cgacgaggca ggtcccctag aagaagaact 480
ccctcgcttc gcagacgaag atctcaatcg ccgcgtcgca gaagatctca atctcgggaa 540
tctcaatgt

```

<210> 279
 <211> 549
 <212> DNA
 <213> Marmota monax

```

<400> 279
atggcttttg ggcattggaca tagatcctta taaagaattt gggtcatctt atcagttggt 60
gaattttctt cctttggact tctttcctga tcttaatgct ttgggtggaca ctgctactgc 120
cttgtatgaa gaagaactaa caggtaggga acattgctct ccgcaccata cagctattag 180
acaagcttta gtatgctggg atgaattaac taaattgata gcttggatga gctctaact 240
aacttctgaa caagtaagaa caatcattgt aaatcatgtc aatgatacct ggggacttaa 300
ggtgagacaa agtttatggt ttcatttgtc atgtctcact ttcggacaac atacagttca 360
agaattttta gtaagttttg gagtatggat caggactcca gctccatata gacctcctaa 420
tgcaccatt ctctcgactc ttccggaaca tacagtcatt aggagaagag gaggtgcaag 480
agcttctagg tccccagaa gacgcactcc ctctcctcgc aggagaagat ctcaatcacc 540
gcgtcgcag

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<210> 280
 <211> 13
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: human
 cytochrome P450

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<400> 280
Gln Glu Lys Gln Leu Asp Glu Asn Ala Asn Val Gln Leu
  1                      5                      10

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<210> 281
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: modified
 portion of Hepatitis B core

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<400> 281
Cys Val Val Thr Thr Glu Pro
  1                      5

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<210> 282

<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:modified
portion of Hepatitis B core

<400> 282
gcaagcttac tattgaattc cgcaaacaac agtagtctcc gg 42

<210> 283
<211> 26
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: modified
portion of Hepatitis B core

<400> 283
Thr Thr Val Val Gly Ile Glu Tyr Leu Asn Lys Ile Gln Asn Ser Leu
1 5 10 15

Ser Thr Glu Trp Ser Pro Cys Ser Val Thr
20 25

<210> 284
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: modified
portion of Hepatitis B core

<400> 284
Thr Thr Val Val Cys Gly Ile Glu Tyr Leu Asn Lys Ile Gln Asn Ser
1 5 10 15

Leu Ser Thr Glu Trp Ser Pro Ala Ser Val Thr
20 25

<210> 285
<211> 51
<212> DNA
<213> plasmid pKK223

<400> 285
ttcacacagg aaacagaatt cccggggatc cgtcgacctg cagccaagct t 51

<210> 286
<211> 38

<212> DNA
<213> plasmid pKK223

<400> 286
ttcacataag gaggaaaaaa cattgggatc cgaagctt

38

<210> 287
<211> 20
<212> PRT
<213> Plasmodium yoelii

<400> 287
Glu Phe Val Lys Gln Ile Ser Ser Gln Leu Thr Glu Glu Trp Ser Gln
1 5 10 15
Cys Ser Val Thr
20

<210> 288
<211> 14
<212> PRT
<213> Escherichia coli

<400> 288
Cys Cys Glu Leu Cys Cys Tyr Pro Ala Cys Ala Gly Cys Asn
1 5 10

<210> 289
<211> 18
<212> PRT
<213> Escherichia coli

<400> 289
Asn Thr Phe Tyr Cys Cys Glu Leu Cys Cys Tyr Pro Ala Cys Ala Gly
1 5 10 15
Cys Asn

<210> 290
<211> 18
<212> PRT
<213> Escherichia coli

<400> 290
Ser Ser Asn Tyr Cys Cys Glu Leu Cys Cys Tyr Pro Ala Cys Ala Gly
1 5 10 15
Cys Asn

<210> 291

<211> 10
<212> PRT
<213> Influenza virus

<400> 291
Leu Ile Asp Ala Leu Leu Gly Asp Pro Cys
1 5 10

<210> 292
<211> 9
<212> PRT
<213> Influenza virus

<400> 292
Thr Leu Ile Asp Ala Leu Leu Gly Cys
1 5

<210> 293
<211> 42
<212> PRT
<213> Homo sapiens

<400> 293
Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys
1 5 10 15
Leu Val Phe Phe Ala Glu Asp Val Gly Ser Asn Lys Gly Ala Ile Ile
20 25 30
Gly Leu Met Val Gly Gly Val Val Ile Ala
35 40

<210> 294
<211> 11
<212> PRT
<213> Homo sapiens

<400> 294
Glu Asp Val Gly Ser Asn Lys Gly Ala Ile Ile
1 5 10

<210> 295
<211> 33
<212> PRT
<213> Homo sapiens

<400> 295
Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys
1 5 10 15
Leu Val Phe Phe Ala Glu Asp Val Gly Ser Asn Lys Gly Ala Ile Ile
20 25 30

Gly

<210> 296
 <211> 60
 <212> DNA
 <213> Homo sapiens

<400> 296
 aattgatgcg gaatttcgtc atgacagcgg ctatgaggtg caccatcaga aactggagct 60

<210> 297
 <211> 52
 <212> DNA
 <213> Homo sapiens

<400> 297
 ccagtttctg atggtgcacc tcatagccgc tgtcatgacg aaattccgca tc 52

<210> 298
 <211> 42
 <212> DNA
 <213> Homo sapiens

<400> 298
 aattgaagat gtcggttcta acaagggggc aattatcgag ct 42

<210> 299
 <211> 34
 <212> DNA
 <213> Homo sapiens

<400> 299
 cgataattgc ccccttggtta gaaccgacat cttc 34

<210> 300
 <211> 82
 <212> DNA
 <213> Homo sapiens

<400> 300
 gcgggaattg atgcggaatt tcgtcatgac agcggctatg aggtgcacca tcagaaactg 60
 gttttctttg ccgaagatgt cg 82

<210> 301
 <211> 83
 <212> DNA
 <213> Homo sapiens

<400> 301
 gcggagctcc gctatgacaa cccacccac cattaagccg ataattgccc ccttggttaga 60

accgacatct tcggcaaaga aaa

83

<210> 302
<211> 53
<212> DNA
<213> Homo sapiens

<400> 302
gcggagctcg ataattgccc ccttggttaga accgacatct tcggcaaaga aaa

53

<210> 303
<211> 31
<212> DNA
<213> Homo sapiens

<400> 303
gcgggaattc tggatgcgga atttcgtcat g

31

<210> 304
<211> 17
<212> DNA
<213> Homo sapiens

<400> 304
gcggagctcc gctatga

17

<210> 305
<211> 31
<212> DNA
<213> Homo sapiens

<400> 305
gcgggaattc tggatgcgga atttcgtcat g

31

<210> 306
<211> 18
<212> DNA
<213> Homo sapiens

<400> 306
gcggagctcg ataattgc

18

<210> 307
<211> 24
<212> PRT
<213> Haemophilus influenzae

<400> 307
Met Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly
1 5 10 15

Cys Arg Cys Asn Asp Ser Ser Asp
20

<210> 308
<211> 23
<212> PRT
<213> Haemophilus influenzae

<400> 308
Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly Cys
1 5 10 15

Arg Cys Asn Asp Ser Ser Asp
20

<210> 309
<211> 23
<212> PRT
<213> Haemophilus influenzae

<400> 309
Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly Ala
1 5 10 15

Arg Ala Asn Asp Ser Ser Asp
20

<210> 310
<211> 35
<212> PRT
<213> Haemophilus influenzae

<400> 310
Met Gly Ile Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu
1 5 10 15

Trp Gly Cys Arg Cys Asn Asp Ser Ser Asp Glu Leu Leu Gly Trp Leu
20 25 30

Trp Gly Ile
35

<210> 311
<211> 35
<212> PRT
<213> Haemophilus influenzae

<400> 311
Met Gly Ile Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu
1 5 10 15

Trp Gly Cys Arg Cys Asn Asp Ser Ser Asp Glu Leu Leu Gly Trp Leu
20 25 30

Trp Gly Ile
35

<210> 312
<211> 23
<212> PRT
<213> Influenza A virus

<400> 312
Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly Ala
1 5 10 15

Arg Ala Asn Asp Ser Ser Asp
20

<210> 313
<211> 19
<212> PRT
<213> Influenza A virus

<400> 313
Glu Gln Gln Ser Ala Val Asp Ala Asp Asp Ser His Phe Val Ser Ile
1 5 10 15

Glu Leu Glu